

WHAT IS CLAIMED IS:

1. An image sensing apparatus comprising:

a signal generator adapted to generate a signal upon reception of input light;

5 a transfer unit adapted to transfer the signal generated by said signal generator;

a temperature measuring unit adapted to measure a temperature;

10 an amplification unit adapted to amplify the signal transferred from said transfer unit; and

a control unit adapted to control a gain of said amplification unit at a first temperature to be lower than a gain of said amplification unit at a second temperature in accordance with a measurement by said temperature measuring unit, the second temperature being lower than the first temperature.

2. An image sensing apparatus comprising:

a signal generator adapted to generate a signal upon reception of input light;

20 a transfer unit adapted to transfer the signal generated by said signal generator;

a temperature measuring unit adapted to measure a temperature;

25 an amplification unit adapted to amplify the signal transferred from said transfer unit; and

a control unit adapted to control to decrease a gain when a temperature measured by said temperature

measuring unit is higher than a predetermined temperature and increase the gain when the temperature measured by said temperature measuring unit is lower than the predetermined temperature.

5 3. An image sensing apparatus comprising:

a signal generator adapted to generate a signal upon reception of input light;

a transfer unit adapted to transfer the signal generated by said signal generator;

10 a temperature measuring unit adapted to measure a temperature;

an amplification unit adapted to amplify the signal transferred from said transfer unit; and

15 a control unit adapted to control to suppress a gain of said amplification unit to not less than a predetermined value when a temperature measured by said temperature measuring unit is not less than a predetermined temperature.

20 4. The apparatus according to claim 1, wherein the apparatus further comprises a calculation unit adapted to calculate a correlation between at least two signals amplified by said amplification unit.

5. The apparatus according to claim 4, wherein said signal generator comprises a plurality of  
25 light-receiving units adapted to receive object images and generates said at least two signals.

6. The apparatus according to claim 1, wherein said

transfer unit comprises at least two transfer units,  
and while said amplification unit amplifies a signal  
transferred from one transfer unit, said amplification  
unit does not amplify a signal transferred from the  
5 other transfer unit.

7. The apparatus according to claim 1, wherein the  
apparatus further comprises a light projection unit  
adapted to project light to an object, and said signal  
generator receives light reflected by the object and  
10 generates a signal upon ON/OFF operation of said light  
projection unit.

8. The apparatus according to claim 1, further  
comprising a skim unit adapted to remove a  
predetermined amount of charge from a charge  
15 transferred from said transfer unit.

9. The apparatus according to claim 1, wherein said  
transfer unit comprises a charge transfer unit at least  
part of which is coupled in a ring shape.

10. A distance measuring apparatus comprising:  
20 a signal generator adapted to generate a signal  
upon reception of light reflected by an object;  
a transfer unit adapted to transfer the signal  
generated by said signal generator;  
a temperature measuring unit adapted to measure a  
25 temperature;  
an amplification unit adapted to amplify the  
signal transferred from said transfer unit;

a control unit adapted to change a gain of said amplification unit in accordance with a measurement in said temperature measuring unit; and

5 a distance calculating unit adapted to calculate a distance on the basis of a signal amplified by said amplification unit.

11. The apparatus according to claim 10, wherein said control unit comprises a control unit adapted to control the gain at the first temperature to be smaller  
10 than the gain at the second temperature lower than the first temperature.

12. The apparatus according to claim 10, wherein said control unit comprises a control unit adapted to decrease the gain when a temperature measured by said  
15 temperature measuring unit is higher than a predetermined temperature and increasing the gain when the measured temperature is lower than the predetermined temperature.

13. The apparatus according to claim 10, wherein said  
20 control unit comprises a control unit adapted to control the gain of said amplification unit to be smaller than a predetermined value when the temperature measured by said temperature measuring unit is not less than a predetermined temperature.

25 14. The apparatus according to claim 10, wherein said transfer unit comprises at least two transfer units, and while said amplification unit amplifies a signal

transferred from one transfer unit, said amplification unit does not amplify a signal transferred from the other transfer unit.

15. The apparatus according to claim 10, wherein the  
5 apparatus further comprises a light projection unit adapted to project light to an object, and said signal generator receives light reflected by the object and generates a signal upon ON/OFF operation of said light projection unit.

10 16. The apparatus according to claim 10, further comprising a skim unit adapted to remove a predetermined amount of charge from a charge transferred from said transfer unit.

17. The apparatus according to claim 10, wherein said  
15 transfer unit comprises a charge transfer unit at least part of which is coupled in a ring shape.

18. The apparatus according to claim 10, wherein said signal generator comprises a plurality of light-receiving units adapted to receive object images.

20 19. The apparatus according to claim 18, wherein said light-receiving unit comprises a plurality of light-receiving units which are formed on different semiconductor substrates, respectively.

20. An image sensing method comprising:  
25 generating a signal upon reception of input light;

transferring the generated signal;

measuring a temperature;  
amplifying the transferred signal; and  
controlling a gain at a first temperature to be  
lower than a gain at a second temperature lower than  
5 the first temperature.

21. An image sensing method comprising:  
generating a signal upon reception of input  
light;  
transferring the generated signal;  
10 measuring a temperature;  
amplifying the transferred signal; and  
controlling a gain to decrease when the measured  
temperature is higher than a predetermined temperature  
and to increase when the measured temperature is lower  
15 than the predetermined temperature.

22. An image sensing method comprising:  
generating a signal upon reception of input  
light;  
transferring the generated signal;  
20 measuring a temperature;  
amplifying the transferred signal; and  
controlling a gain to not more than a  
predetermined value when the measured temperature is  
not less than a predetermined temperature.

23. The method according to claim 20, wherein a  
correlation between at least two amplified signals is  
calculated.

24. The method according to claim 23, wherein a signal is generated by a plurality of light-receiving units adapted to receive object images, and said at least two amplified signals are generated.

5 25. The method according to claim 20, wherein signals are transferred by at least two transfer units, and while a signal transferred by one transfer unit is amplified, a signal transferred from the other transfer unit is not amplified.

10 26. The method according to claim 20, wherein light reflected by the object is input to generate a signal upon ON/OFF operation of a light projection unit.

27. The method according to claim 20, wherein a predetermined amount of charge is removed from a  
15 transferred charge.

28. The method according to claim 20, wherein a signal is transferred by a transfer unit at least part of which is coupled in a ring shape.

29. A distance measuring method comprising:  
20 generating a signal upon reception of light reflected by an object;

transferring the generated signal;

measuring a temperature;

25 amplifying the transferred signal at a gain corresponding to the measured temperature;

controlling the gain to change in accordance with the measurement; and

calculating a distance on the basis of the amplified signal.

30. The method according to claim 29, wherein the gain at a first temperature is controlled to be lower  
5 than the gain at a second temperature lower than the first temperature.

31. The method according to claim 29, wherein when a measured temperature is higher than a predetermined temperature, the gain is decreased, and when the  
10 measured temperature is lower than the predetermined temperature, the gain is increased.

32. The method according to claim 29, wherein when a measured temperature is not less than a predetermined temperature, the gain is controlled to be less than a  
15 predetermined value.

33. The method according to claim 29, wherein signals are transferred by at least two transfer units, and while a signal transferred by one transfer unit is amplified, a signal transferred from the other transfer  
20 unit is not amplified.

34. The method according to claim 29, wherein light reflected by the object is input to generate a signal upon ON/OFF operation of a light projection unit.

35. The method according to claim 29, wherein a  
25 predetermined amount of charge is removed from a transferred charge.

36. The method according to claim 29, wherein a



signal is transferred by a transfer unit at least part of which is coupled in a ring shape.

37. The method according to claim 29, wherein a signal is generated by a plurality of light-receiving units adapted to receive object images, and said at least two amplified signals are generated.

38. The method according to claim 37, wherein the plurality of light-receiving units are formed on different semiconductor substrates, respectively.

39. A program causing a computer to execute the image sensing method of claim 20.

40. A recording medium storing the program of claim 39.

41. A program causing a computer to execute the image sensing method of claim 21.

42. A recording medium storing the program of claim 41.

43. A program causing a computer to execute the image sensing method of claim 22.

44. A recording medium storing the program of claim 43.

45. A program causing a computer to execute the distance measuring method of claim 29.

46. A recording medium storing the program of claim 45.